



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,112	07/14/2003	Kun-Hyung Lee	SAM-0396	5813

7590

05/06/2005

Steven M. Mills
MILLS & ONELLO LLP
Suite 605
Eleven Beacon Street
Boston, MA 02108

EXAMINER

ADAMS, GREGORY W

ART UNIT

PAPER NUMBER

3652

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,112

Applicant(s)

LEE ET AL.

Examiner

Gregory W. Adams

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/14/2003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 8-14, 16-22, 24-34, 36-42 & 45-46 rejected under 35 U.S.C. 102(e) as being anticipated by Tokunaga (US 2003/0031537) published on Feb. 13, 2003 (now patent US 6,817,822).

3. With respect to claim 1, Tokunaga '537 discloses an apparatus 200 comprising a flow chamber 40 having a first gas inlet 42 for a first gas (c. 4, Ins. 34-36), wafer inlet 101, wafer outlet 50 coupled to a wafer processing apparatus, robotic apparatus 41, second gas inlet 47 for a second gas 47, and a wafer storage device 100.

4. With respect to claim 2, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, Ins. 34-36.

5. With respect to claim 3, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.

6. With respect to claim 4, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

7. With respect to claim 5, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.

8. With respect to claim 6, Tokunaga '537 discloses first gas comprises clean dry air has laminar flow. Col. 4, Ins. 36-38.
9. With respect to claim 8, Tokunaga '537 discloses a robotic element 41 is a wafer handler.
10. With respect to claim 9, Tokunaga '537 discloses method for processing a wafer (col. 5, ln. 54 - col. 5, ln. 36) comprising providing a flow chamber 40 having a first gas inlet 42 for allowing a first gas (col. 4, Ins. 34-36), providing a wafer inlet 101, providing a wafer outlet 50, providing a robotic apparatus, and allowing a second gas 47 to enter a flow chamber 40.
11. With respect to claim 10, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, Ins. 34-36.
12. With respect to claim 11, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.
13. With respect to claim 12, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.
14. With respect to claim 13, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.
15. With respect to claim 14, Tokunaga '537 discloses first gas has laminar flow. Col. 4, Ins. 36-38.
16. With respect to claim 16, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

17. With respect to claim 17, Tokunaga '537 discloses an apparatus for manufacturing a semiconductor device comprising a wafer storage device 100, a wafer processing apparatus (col. 4, Ins. 25-31), a wafer transfer apparatus 200 comprising a flow chamber 40 having a first gas inlet 42 for allowing a first gas (Col. 4, Ins. 34-36), wafer inlet 101, wafer outlet 50, robotic apparatus 41, and a second gas inlet 47 for allowing a second gas.
18. With respect to claim 18, Tokunaga '537 discloses first gas comprises clean dry air has laminar flow. Col. 4, Ins. 36-38.
19. With respect to claim 19, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.
20. With respect to claim 20, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.
21. With respect to claim 21, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.
22. With respect to claim 22, Tokunaga '537 discloses first gas comprises clean dry air has laminar flow. Col. 4, Ins. 36-38.
23. With respect to claim 24, Tokunaga '537 discloses a robotic element 41 is a wafer handler.
24. With respect to claims 25-28, Tokunaga '537 discloses a wafer processing apparatus is a chemical vapor deposition apparatus, furnace, dry etch apparatus, or a metrology apparatus. Col. 4, Ins. 25-31.

25. With respect to claim 29, Tokunaga '537 discloses method for processing a wafer (col. 5, ln. 54 - col. 5, ln. 36) comprising storing a wafer in a wafer storage device 100, performing a manufacturing process, transferring a wafer between a wafer storage device 100 and a wafer processing apparatus, using a wafer transfer apparatus 200, a transferring comprising providing a flow chamber 40 having a first gas inlet 42 for a first gas, coupling a wafer inlet 101 to a wafer storage device 100, coupling a wafer outlet 50 to a wafer processing apparatus moving a wafer from a wafer inlet using a robotic apparatus 41, allowing a second gas 47 to enter a flow chamber 40.
26. With respect to claim 30, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, lns. 34-36.
27. With respect to claim 31, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, lns. 56-59.
28. With respect to claim 32, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, lns. 48-57.
29. With respect to claim 33, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, lns. 48-57.
30. With respect to claim 34, Tokunaga '537 discloses first gas has laminar flow. Col. 4, lns. 36-38.
31. With respect to claim 36, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

32. With respect to claims 37-40, Tokunaga '537 discloses a wafer processing apparatus is a chemical vapor deposition apparatus, furnace, dry etch apparatus, or a metrology apparatus. Col. 4, Ins. 25-31.
33. With respect to claim 41, Tokunaga '537 discloses an equipment front-end module 40 comprising a first gas inlet 42 for allowing a first gas, and a second gas inlet 47 for allowing a second gas. Col. 4, Ins. 34-36.
34. With respect to claim 42, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.
35. With respect to claim 45, Tokunaga '537 discloses method for processing a wafer (col. 5, In. 54 - col. 5, In. 36) comprising allowing a first gas and second gas to enter.
36. With respect to claim 46, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

Claim Rejections - 35 USC § 103

37. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

38. Claims 7, 23 & 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga (US 2003/0031537) in view of Tokunaga (US 2003/0009904) (embodiment 1) (published on Jan. 16, 2003.) Tokunaga '537 discloses a second gas inlet 47 in a flow chamber for an inert gas such as nitrogen to enter a flow chamber, but does not disclose a third gas inlet for allowing a third gas to enter a flow chamber.

Tokunaga '904 discloses a second gas inlet 3, 5 and a third gas inlet 3, 5. Para. [0062]. Tokunaga '904 teaches second and third gas inlets for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tokunaga '537 to include a second and third gas inlet, as per the teachings of Tokunaga '904, for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge.

39. Claims 15, 35 & 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga (US 2003/0031537) in view of Tokunaga (US 2003/0009904) (embodiment 1) (published on Jan. 16, 2003.) Tokunaga '537 discloses a method for processing a wafer (col. 5, ln. 54 thru col. 5, ln. 36) including a second gas inlet 47 in a flow chamber for allowing a second gas, i.e. inert gas such as nitrogen, to enter a flow chamber 40, but does not disclose a third gas inlet for allowing a third gas to enter a flow chamber. Tokunaga '904 discloses a second gas inlet 3, 5 and a third gas inlet 3, 5. Para. [0062]. Tokunaga '904 teaches second and third gas inlets for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tokunaga '537 to include a second and third gas inlet, as per the teachings of Tokunaga '904, for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge.

Conclusion

40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,135,608 for Okutani

US 6,109,915 for Liu et al.

US 6,224,679 for Sasaki et al.

JP 08-046005 for Ro et al.

JP 11-145245 for Kamiyama

JP 11-307623 for Moriya

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-Th, 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GWA


EILEEN D. LILLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600